REPORT

ON

METEOROLOGY,

AND

HORTICULTURAL GARDENS.

IN THE PROVINCE OF OUDH.

FOR 1874-75.

LUCKNOW :—*Printed at the* OUDH GOVERNMENT PRESS.

III

No. 2824.

FROM

THE OFFG. SECY. TO THE CHIEF COMMISSIONER,

OUDH,

To

THE SUPERINTENDENT DEPARTMENT OF SCIENCE,

OUDH.

Dated Lucknow, the 15th June 1875.

SIR,

I AM directed to acknowledge the receipt of your Meteorological report for the year ending the 31st March last.

Para. 3.
Para. 4.

2. The mean temperature was rather higher than during the preceding year, and the range was less by 4·2. Comparing your figures with the district returns, it would seem that Lucknow was the coolest station in Oudh. Of the rest, Rae Bareli is again shown to be the hottest, and Fyzabad the coolest station. As remarked last year, the figures can hardly be accurate.

Para. 10.

3. None of the six storms recorded by you were severe.

Paras. 11 & 12.

4. The rainfall recorded at Lucknow was 51·183 inches, nearly 17 inches more than during the preceding year, and there was a fair fall throughout the province. In one district only (Rae Bareli) is the fall of 1874-75 said to have been less than that of 1873-74, the figures being 1873-74—45·02; 1874-75—40·8

From the remark opposite Gonda, it is by no means clear whether much damage was or was not done by the hail.

I have the honor to be,
Sir,
Your most obedient servant,

H. J. SPARKS,
Offg. Secy. to the Chief Commr., Oudh.

635·074
Ou 93

Meteorological Report for 1874-75.

THIS report includes the period for the official year from 1st of April 1874 to 31st of March 1875.

Barometric Pressure

2. The barometric pressure was at its highest on the 20th December 1874, 29·808, and at its lowest on the 25th June 1874, 28·943; the mean pressure during the above period was 29·397. The following table gives the comparison between the pressure of the present and previous year :—

	1873-74.	1874-75.
Mean, ...	29 401	29·397
Maximum, ...	29 888 January 19th, ..	29 808 December 20th.
Minimum, ...	28·838 June 15th, ...	28·943 June 25th.
Range, ...	1 050	·865

MONTHLY MEAN BAROMETRIC PRESSURE.

April 1874	29 366	October 1874	29·442
May „	29·175	November „	29 637
June „	29 161	December „	29·686
July „	29·184	January 1875	29·597
August „	29·195	February „	29 595
September „	29 299	March „	29·434

Temperature in shade.

3. The highest temperature in the shade during the year was 115·3 on the 10th May 1874, and the lowest was 39 3 on the 23rd January 1875; the mean temperature of the year was 78·5 :—

	1873-74.	1874-75.
Mean, ...	78 2	78 5
Maximum, ...	116 3 June 4th and 5th, ..	115 3 May 10th.
Minimum, ...	36·1 January 8th, ...	39 3 January 23rd.
Range, ...	80 2	76 0

MONTHLY MEAN TEMPERATURE IN THE SHADE.

April	1874	..	89·7	October	1874	..	79·1
May	„	..	97·1	November	„	..	68·0
June	„	..	86·7	December	„	..	61·1
July	„	..	85·6	January	1875	..	60·1
August	„	..	84·6	February	„	..	66·2
September	„	..	84·1	March	„	..	79·8

In January, February, and March 1875, the monthly mean temperature in the shade was higher than that of the corresponding months of 1874, and that of March especially considerably higher.

4. The following are the mean annual temperatures taken from the registers of the various districts of Oudh :— Civil Dispensary Registers

Unao,	..	..	85·3	Hardoi,	..	..	84·1
Bara Banki,	..	..	82·4	Kheri,	..	..	87·5
Fyzabad,	..	..	79·3	Rae Bareli,	..	..	88·4
Gonda,	..	..	81·2	Sultanpur,	..	..	87·2
Bahraich,	..	..	79·6	Partabgarh,	..	..	85·0
Sitapur,	..	..	84·6				

The two stations of which the mean temperatures recorded, come nearest to those of the Lucknow observations, are those of Fyzabad and Bahraich.

5. The highest temperature in the sun's rays (maximum thermometer black bulb) during the year was 167·2 on the 25th May 1874. The lowest and mean temperatures cannot be given, as during the months of October, November, December, and January, the thermometer was found inaccurate. A new one had to be procured :— Temperature in sun's rays

	1873-74.	1874-75.
Mean, ...	140·6	
Maximum, ..	171·0, June 4th 1874 ..	167·2 May 25th 1874.
Minimum, ..	75·3 February 5th 1875 ..	
Range, ...	95·7	

MONTHLY MEAN TEMPERATURE IN SUN'S RAYS.

April	1874	..	158·8	October	1874	..	blank
May	„	..	161·8	November	„	..	„
June	„	..	145·5	December	„	..	„
July	„	..	143·4	January	1875	..	„
August	„	..	138·6	February	„	..	131·7
September	„	..	135·3	March	„	..	148·4

Temperature on grass at night.

6. The highest temperature on the grass was 86·4 on the 29th May 1874, and the lowest was 28·7 on the 23rd January 1875.

The annual mean was 61·5 :—

	1873-74.	1874-75.
Mean, ...	59·6	61·5
Maximum, ..	85·7 June 10th	86·4 May 29th.
Minimum, ..	26·7 January 8th	28·7 January 23rd.
Range, ...	59·0	57·7

The severest frost during the year was on the night of the 23rd January 1875. It was later than that of last year, and not so severe. The temperature was only 3·3° below freezing point.

MONTHLY MEAN NOCTURNAL MINIMUM TEMPERATURE.

April	1874	..	66.3	October	1874	..	60·6
May	„	..	77·1	November	„	..	44·7
June	„	..	78 6	December	„	..	39·2
July	„	..	77·8	January	1875	..	39·3
August	„	..	77 5	February,	„	..	46·7
September	„	..	75·2	March	„	..	54·8

Humidity.

7. The highest degree of humidity was ·996 on the 15th June 1874, and the lowest was ·100 on the 19th May 1874. The mean degree of humidity for the year was ·626 :—

	1873-74.	1874-75.
Mean, ..	·628	·626
Maximum, ..	1·000 July 17th, 24th, 30th, and 31st; August 11th, 13th, and 29th; September 6th, 12th, 14th, and 16th; and December 11th, 22nd, and 27th ...	·996 June 15th.
Minimum, ..	·141 March 11th	·100 May 19th.
Range, ..	·859, ...	·896

Monthly Mean Humidity.

April	1874,	..	..	·342	October	1874	..	..	·678
May	,,	..	..	·338	November	,,	..	..	·633
June	,,	..	..	·797	December	,,	..	..	·617
July	,,	..	..	·858	January	1875	..	..	·603
August	,,	..	..	·873	February	,,	..	..	·579
September	,,	..	..	·802	March	,,	..	..	·401

Clouds.

8. There were 90 partially cloudy days, and 169 totally cloudy days throughout the year. The most cloudy months were June, July, August, and September 1874.

Wind.

9. The prevailing wind was W-N-W. The most windy month, that is, in which the largest number of miles of wind passed by the Observatory, was May 1874 :—

	Direction of Wind.																			
	N.	N N E	N E.	E N E.	E.	E S E.	S E.	S S E.	S.	S S W.	S W.	W S W.	W.	W N W.	N W.	N N W.	Variable.	Out of gear.	Total.	Total number of miles of wind during the year.
Total.	642	242	166	37	351	872	252	136	341	428	141	252	1,198	1,671	271	726	32	2	8,760	25,223

I would again beg to urge the great advantage of a superior self-recording wind gauge than Osler's, the one in use. The one used at Kew is on a different principle, and would cost £80 without the carriage, as I stated in the report for 1872-73. A thoroughly accurate instrument for recording the direction and velocity of the wind is of the greatest importance.

Storms.

10. There were 6 storms during the official year. The highest pressure was 5lbs. in that which occurred on the 30th July 1874.

Record of Storms which occurred in Lucknow from 1st April 1874 to 31st March 1875.

Month and date.	Hour.	Duration.	From which direction.	Mean barometric pressure (during storm) reduced.	Total velocity of wind during storm (in miles.)	Maximum pressure of wind during storm.	Ozone observations during storm.	Accompanying phenomena.
	H. M.	H. M.						
May 12th, ...	19-15	1-20	N-N-E.	29·221	16	2¼lbs,	1	*Nil.*
June 4th, ...	16-15	0-30	N-N-W.	29·286	9	1¼lbs,	2	Drizzle and thunder.
Do. 6th, ...	10-00	1-00	W-S-W.	29·338	18	3¼lbs,	2	Do, do., do.
July 19th, ...	15-20	0-50	S-S-W.	29·212	4	3lbs,	1	Rain, lightning, and thunder.
Do. 30th, ...	15-50	0-10	E-N-E.	29·085	3	5lbs,	2	Heavy rain.
August 2nd, ...	17-20	0-20	E-S-E.	29·153	5	4lbs.	4	Rain, lightning, and thunder.

In last year's report under the heading of "Record of Storms" a misprint occurred. In the storm of 4th May, the duration should have been 1 hour and 10 minutes, instead of 10 minutes, and in that of the 7th May, the duration should have been 30 minutes instead of 15 minutes.

Rainfall Lucknow Observatory.

11. The total rain fall throughout the year at the Lucknow Observatory was 51·183 inches. The month in which most rain fell was August 1874, and the month in which there were most rainy days was June 1874:—

Months.			Rainfall	Months.			Rainfall.
April	1874,	...	...	October	1874,	...	0 37
May	do.,	...	0·05	November	„	...	...
June	do.,	...	12 227	December	„	...	0·05
July	do.,	...	12·889	January	1875,	...	0·1
August	do,	...	17·682	February	„	...	0·375
September	do,	...	7·44	March	„	...	...
					Total,	...	51·183

Nothing could have been more favorable to the rain crops than the past year's fall. It commenced early, it was abundant, and equally distributed throughout the season. But the usual showers which fall in December and January were very scanty. The total rainfall recorded in the year under review was 16·97 inches more than that of the previous year, and thus it would appear to disprove Mr. Meldrum's theory. This may not be at all so, as by grouping the years of rainfall round the maximum and minimum years, as he did, the result may yet be as he found it. For instance, the higher fall of 1874, as compared with that of 1873, may be more than compensated by a small fall in 1875. But this remains yet to be ascertained.

Rainfall from District Registers.

12. Herewith is also given the rainfall for all the districts in Oudh for the year 1874-75 :—

Dispensaries.	Rain-fall.
Unao, ...	39·7
Bara Banki, ...	47·4
Fyzabad, ...	52·9
Gonda, ...	62·55
Bahraich, ...	44·0
Sitapur, ...	46·2
Hardoi, ...	47·5
Kheri, ...	58·3
Rae Bareli,...	40·8
Sultanpur, ...	61·6
Pratabgarh, ...	34·95

There was no material difference between the recorded rainfall of the dispensary and Sadr Tahsil of each district.

There does not appear to have been any extensive floods in Oudh during the past year excepting in the Unao district:— Floods.

District.	Month and Date.	Remarks in district returns.
Unao, ..	No information received ..	
Bara Banki, ..	*Nil.* ..	*Nil.*
Fyzabad, ..	*Nil.* ..	*Nil.*
Gonda, ..	*Nil.* ..	*Nil.*
Bahraich, ..	1st week of July 1874 ..	Jowar and paddy were damaged.
Sitapur,	5th, 10th, 12th, 13th, 15th and 26th September, ..	Jowar, bájra, and kodon were damaged.
Hardoi, ..	12th and 13th September, ..	It was injurious to lives and crops, &c.
Kheri,	12th August and 4th, 11th, and 12th September,	Some damage was done to houses and crops.
Rae Barcli, ..	*Nil.* ..	*Nil.*
Sultanpur, ..	End of July and 10th Septr. ..	Crops were injured.
Partabgarh, ..	27th August, ..	Considerable damage was done to kharíff crops.

The following table shows the districts where hail fell during the year 1874-75 :— Hail.

Districts.	Month and Date.	Remarks in district returns.
Lucknow,... ...	1st and 22nd February 1875,... ...	No damage was done.
Ulao, ...	29th January & 8th Februray 1875. ...	It was slightly injurious to tobacco.
Bara Banki, ...	30th Jany. & 16th & 26th Feby. 1875,	No appreciable damage was done.
Fyzabad, ...	11th Jany. & 16th & 17th Feby. 1875,	It was not injurious.
Gonda, ...	16th February 1875, ...	It was more or less injurious.
Bahraich, ...	16th February 1875, ...	No damage was done.
Sitapur, ...	15th February 1875, ...	Considerable damage has been done.
Hardoi, ...	15th February 1875, ...	Damage to crops to the extent of Rs. 2,911-4-0.
Kheri, ...	15th and 16th February 1875, ...	Considerable damage has been done.
Rai Barcli, ...	Not mentioned in return, ...	No damage was done.
Sultanpur, ...	Ditto, ...	Ditto.
Partabgurh, ...	Ditto, ...	Ditto.

Last year neither the Tahsíl nor dispensary returns noticed falls of hail of any consequence, but it was afterwards discovered that in the Sitapur, Bahraich, and Gonda districts, and especially in the latter, hail-storms did occur, which caused considerable damage to the crops. It is hoped that in future similar phenomena may be recorded in the tahsíl rain returns as no other record is received in this office.

Abstract of Meteorological Observations taken at the Observatory Lucknow for the year 1874-75.

N. B.—The numbers given are the mean, highest, and lowest of four daily observations, *viz.*, 4 A. M., 10 A. M., 4 P. M., and 10 P. M.

	Atmospheric pressure.	Temperature in shade.	Wet bulb.	Dewpoint	Elastic force of vapour.	Relative humidity saturation =1·000.	Maximum in sun's rays.	Maximum in shade.	Minimum in shade.	Minimum on grass.	Azone.	Range of thermometers in year between maxima in sun's rays and minima on grass	Wind. Velocity of wind.	Wind. Average pressure per per hour.	Rainfall.	Remarks.
Mean.	29·397	78.5	68·1	61·8	·624	·626	...	91·7	64·6	61·5	2·5	...	68	0·064	...	
Highest in year.	29·808—20th December.	115·3—10th May.	90·9—15th June.	90·9—15th June	1·449—15th June.	·996—15th June.	167·2—25th May.	117·6—11th May.	89.0—30th May.	86·4—29th May.	7·5—13th & 15th June.	114·7—February.	271—20th June.	0·605—20th June.	51.183	
Lowest in year.	28·943—25th June.	39·3—23rd Jan.	35·7—23rd Jan.	24·3—21st Jan.	·125—21st Jan.	·100—19th May.	...	68·4—29th Dec.	33·0—23rd Jan.	28·7—23rd Jan.	* 1·0.	...	2—29th Sept.	0·00013—29th Sept.	...	* 1, 9, 16, 19, 21, 22, 24, and 26th April; 2, 3, 4, 6, 7, 8, 10, 11, 14, 15, 16, 17, 18, 20, 21, 22nd and 23rd May; 27th June; 25th and 28th July; 6th August; and 11th and 21st September 1874.

General Retrospect of the Weather during the year 1874-75.

April 1874.—It was clear on the 11th, 18th, and 24th; hazy on the 1st, 2nd, 4th, 5th, and 6th; and remaining days more or less cloudy. The prevailing wind was N-N-W. High wind on the 1st, 3rd, 4th, 5th, 11th, 12th, 13th, 14th, 15th, 16th, 17th, 18th, 19th, 22nd, 23rd, 24th, 25th, 26th, and 30th. Drizzle and lightning on the 29th and 30th. Dew on the 6th, 7th, and 8th.

May 1874.—It was totally cloudy on the 6th, 10th, 12th, 23rd, 24th, 25th, 26th, and 31st; and partially so on the 1st, 5th, 15th, 16th, 18th, 22nd, 28th, and 30th; hazy on the 2nd, 11th, and 29th, and remaining days clear. The prevailing wind was W-N-W. Storm on the 12th from N-N-E. at 19-15 h. with a maximum pressure of 2½ lbs. High wind on the 1st, 2nd, 3rd, 4th, 5th, 6th, 7th, 8th, 9th, 10th, 11th, 13th, 14th, 15th, 16th, 17th, 18th, 19th, 20th, 21st, 25th, 27th, and 29th. Rain on the 25th. Lightning on the 12th, 26th, and 30th.

June 1874.—It was clear on the 2nd; and remaining days more or less cloudy. The general direction of wind was E-S-E. Storm on the 4th from N-N-W. at 16-15 h. with a maximum pressure of 1¾ lbs. accompanied by drizzle and thunder, and on the 6th from W-S-W. at 10 h. with a maximum pressure of 3½ lbs, accompanied by drizzle and thunder. High wind on the 1st, 2nd, 3rd, 7th, 8th, 9th, 16th, 17th, 18th, 19th, and 20th. Rain on the 5th, 10th, 11th, 13th, 14th, 15th, 19th, 20th, 21st, 22nd, 23rd, 25th, 26th, 27th, 28th, and 29th. Drizzle on the 4th, 6th, 10th, 11th, 13th, 15th, 18th, 19th, 27th, and 29th. Lightning throughout the month excepting on the 3rd, 4th, 10th, 18th, 20th, 24th, and 26th. Thunder on the 2nd, 4th, 6th, 7th, 8th, 10th, 13th, 14th, 15th, 21st, 23rd, 25th, and 28th. Dew on the 6th, 7th, 11th, 12th, 15th, 24th, 25th, 27th, and 30th.

JULY 1874.—It was cloudy throughout the month. The general direction of wind was E-S-E. Storm on the 19th from S-S-W. at 15-20h. with a maximum pressure of 3lbs. accompanied by rain, lightning, and thunder; and on the 30th from E-N-E. at 15-30h. with a maximum pressure of 5lbs. accompanied by heavy rain. High wind on the 6th, 13th, 24th, 25th, 26th, and 31st. Rain on the 2nd, 3rd, 4th, 5th, 6th, 9th, 10th, 12th, 14th 16th, 17th, 18th, 22nd, 23rd, 28th, 29th, 30th, and 31st. Drizzle on the 2nd, 3rd, 5th, 6th, 7th, 11th, and 15th. Lightning throughout the month excepting on the 27th. Thunder on the 2nd, 4th, 7th, 8th, 9th, 10th, 14th, 18th, 28th, and 29th. Dew on the 1st, 2nd, 3rd, 7th, 8th, 12th, 13th, 14th, 16th, 17th, 18th, 19th, 20th, 21st, 23rd, 24th, 26th, 27th, and 28th.

AUGUST 1874.—It was more or less cloudy throughout the month. The general directions of wind were E. and E-S-E. Storm on the 2nd from E-S-E. at 17-20h. with a maximum pressure of 4lbs. accompanied by rain, lightning, and thunder. High wind on the 1st, 3rd, 4th, 16th, 17th, 24th, 25th, 27th, 28th, and 29th. Rain on the 1st, 3rd, 4th, 5th, 6th, 7th, 9th, 12th, 13th, 18th, 19th, and 26th. Drizzle on the 2nd, 8th, 10th, 14th, 21st, 22nd, 23rd, 24th, 28th, 30th, and 31st. Lightning on the 2nd, 3rd, 4th, 5th, 6th, 7th, 8th, 10th, 11th, 12th, 13th, 14th, 15th, 16th, 17th, 18th, 19th, 20th, 22nd, 23rd, 24th, 28th, 30th, and 31st. Dew on the 1st, 5th, 6th, 8th, 10th, 11th, 13th, 14th, 15th, 16th, 20th. 23rd, 29th, 30th, and 31st.

SEPTEMBER 1874.—It was more or less cloudy throughout the month. The general direction of wind was W. High wind on the 2nd, 8th, 9th, 25th, 26th, and 30th. Rain on the 4th, 5th, 9th, 10th, 11th, and 12th. Drizzle on the 2nd, 3rd, 6th, 8th, 9th, 10th, 11th, 25th, 26th, and 27th. Lightning on the 2nd, 3rd, 4th, 6th, 7th, 8th, 10th, 11th, 15th, 24th, and 29th. Dew throughout the month excepting on the 4th, 8th, 9th, 10th, 11th, 25th, and 26th.

OCTOBER 1874.—It was more or less cloudy on the 3rd, 4th, 5th, 6th, 7th, 8th, 16th, 26th, 27th, 28th, and 29th, and remaining days clear. The general directions of wind were N-W. and N-N-W. High wind on the 1st, 27th, 28th, 29th, 30th, and 31st. Rain on the 6th. Drizzle on the 28th. Lightning on the 4th, 5th, and 6th. Dew throughout the month excepting on the 28th.

NOVEMBER 1874.—It was more or less cloudy on the 1st, 2nd, 3rd, 4th, 17th, 18th, 19th, 20th, and 30th, and remaining days clear. The general directions of wind were W-N-W. and N-N-W. Dew throughout the month. Fog on the 22nd, 26th, and 30th.

DECEMBER 1874.—It was cloudy on the 7th, 8th, 9th, 21st, 22nd, 23rd, 24th, 25th, 26th, 27th, and 28th ; partially so on the 2nd, 10th, 11th, 16th, and 20th, and remaining days clear. The general direction of wind was W-N-W. High wind on the 3rd, 18th, 19th, 22nd, 26th, and 29th. Drizzle on the 28th. Dew throughout the month, excepting on the 18th, 21st, 22nd, 23rd, 24th, 25th, 26th, 27th, and 28th. Fog on the 12th and 13th.

JANUARY 1875.—It was totally cloudy on the 2nd, 3rd, 4th, 24th, 25th, and 30th; partially so on the 1st, 5th, 7th, 8th, 10th, 11th, 12th, 13th, 16th, 17th, 18th, 20th, 23rd, 26th, 29th, and 31st; and remaining days clear. The general direction of wind was W-N-W. High wind on the 14th, 15th, and 26th. Drizzle and lightning on the 3rd, 4th, and 30th. Dew on the 1st, 3rd, 4th, 5th, 6th, 7th, 8th, 9th, 10th, 11th, 12th, 15th, 16th, 22nd, 27th, 28th, 30th, and 31st. Fog on the 6th, 10th, 11th, and 12th.

FEBRUARY 1875.—It was more or less cloudy throughout the month, excepting on the 11th, 24th, 25th, 26th, 27th, and 28th. The prevailing wind was W-N-W. High wind on the 1st, 11th, 12th, 14th, 15th, 16th, 17th, 18th, 19th, 21st, 24th, 25th, 26th, 27th, and 28th. Rain on the 25th. Drizzle on the 14th, 16th, and 22nd. Lightning on the 3rd, 4th, 7th, 8th, 13th, 14th, and 15th. Dew on the 2nd, 8th, 9th, 16th, 18th, 19th, 22nd, and 26th.

MARCH 1875.—It was more or less cloudy throughout the month, excepting on the 1st, 2nd, 3rd, 7th, 13th, 15th, 20th, 21st, 22nd, 23rd, and 27th. The prevailing winds were W-N-W. and N-W. High wind on the 1st, 2nd, 4th, 6th, 7th, 8th, 9th, 10th, 11th, 15th, 16th, 18th, 19th, 20th, 21st, 22nd, and 28th. Dust on the 7th, 8th, 9th, and 10th. Lightning on the 16th. Dew throughout the month excepting on the 4th, 7th, 8th, 9th, 10th, 15th, 16th, and 18th.

E. BONAVIA, M. D.,

Supt. Dept. of Science, Oudh.

No. 2823.

FROM

THE OFFG. SECY. TO THE CHIEF COMMISSIONER,

OUDH,

To

THE SUPERINTENDENT DEPARTMENT OF SCIENCE,

OUDH.

Dated Lucknow, the 15*th June* 1875.

SIR,

General Department. I AM directed to acknowledge the receipt of your report on the Horticultural Garden during the year 1874-75.

Paras. 1 & 2. 2. There was a slight increase in the receipts, which during the year amounted to Rs. 5,781-8-6, in addition to the Government allowance of Rs. 2,640. The expenditure—Rs. 8,271-5-4—was nearly Rs. 900 less than in the preceding year, and on the 31st March there was a balance of Rs. 686-10-11.

Para. 4. 3. The number of subscribers—29—is the same as before, but there are fewer of the first and more of the second class than there were.

Para. 8. 4. The increased demand for acclimatized seed is encouraging.

Para. 26. 5. The result of your endeavour to educate boys as gardeners has not been encouraging.

I have the honor to be,
Sir,
Your most obedient servant,

H. J. SPARKS,

Offg. Secy. to the Chief Commr., Oudh.

Report on the Horticultural Gardens, Lucknow, for the Year ending 31st March 1875.

Income.

1. The receipts during the year have been Rs. 8,421-8-6, which, added to the balance of the previous year, made Rs. 8,958-0-3. The net receipts for produce of the garden, including plants, fruit, vegetables, flowers, acclimatized seeds, wood, &c., amounted to Rs. 2,732-0-6, which is Rs. 229-3-4 more than was realized for the same produce last year; and the total receipts show an increase of Rs. 788-11-2 over those of last year.

Expenditure.

2. The expenditure during the year amounted to Rs. 8,271-5-4, leaving a balance of Rs. 686-10-11. In this account appear not only the sums which were due to seedsmen, but also advances sent to them for seeds required in 1875. On the 31st March 1875, there were no sums of any consequence due by the garden.

Accounts with seedsmen.

3. The accounts with seedsmen stand as under—

MESSRS. D. LANDRETH & Co., PHILADELPHIA.

Balance in favor of Horticultural Gardens for 1874	doll	40	·91
Advance remitted for 1875	£	40	0 0

MESSRS. VILMORIN ANDRIEUX & Co. OF PARIS.

Balance in our favor for 1873	£	0	18 1
Remitted on account of bill for 1874	„	41	5 6

No seeds have been ordered from this firm for 1875.

Subscribers.

4. The subscribers to the Horticultural Garden during the past year were—

First Class	21
Second Class	8

Plants sold.

5. The number of plants sold during the year were—

Ornamental plants of sorts	1,497
Rose plants	597
Fruit trees	727
Cuttings of sorts	1,206

Plants supplied gratis.

6. The number of plants supplied gratis for public purposes were—

Ornamental plants of sorts	231
Rose plants	1
Seedling Arabian date palms	400
Cuttings of sorts	32

Imported seeds.

7. The seeds imported last year from Messrs. Vilmorin Andrieux and Co. of Paris did not prove satisfactory. During many years of experience with vegetable seeds from different growers, I find none to be compared with those of Messrs. D. Landreth and Son, of Philadelphia. I used to import two batches of vegetable seeds; an early one from France or England, and a later one from America. For next year I thought it preferable to obtain both batches from America, and I have no doubt that they will, as they have hitherto invariably done, prove satisfactory.

Acclimatized seeds.

8. There was a much larger demand for acclimatized seeds during the past year than previously. The sale of these seeds in 1873-74 was only Rs. 172. While during the past year it amounted to Rs. 641-6-6.

Fruit trees and nursery.

9. All the fruit trees and nursery have been placed under the special care of Mr. Ridley, so that I hope in future I may be able to give a better account of them than hitherto.

Vines.

10. The vines this year have not shown much fruit. The last continuous rains are supposed to have been too much for them, as several young plants had been killed by excess of moisture. The hope of eventually being able to grow the vine festooned on trees as in Italy, is not given up, but this experiment cannot be tried before a sufficient number of trees are grown as supports, and before young vines are procurable, as I said, there having been last rains great mortality among the vine layers.

Oranges.

11. The mandarin oranges suffered very much during the fierce hot winds of 1874. They appear to be more delicate than other kinds. A few of them were killed outright. The cintra oranges appear to have benefited by the top dressing of river clay. The fruit was very much improved. I have treated the mandarin oranges in the same way, in the hope of enabling the soil around them to retain more moisture during the hot winds. The other kinds are doing well. The Malta lemons produced a magnificent crop of fruit last year, such as they have not done before. The number in fruit at the close of the year were—

Oranges	853
Lemons	114
Pumelows...	133

Peaches.

12. The peach trees grew so much that they became too close to each other, and had to be thinned out. Some of them last year produced very fine fruit, but they are still attacked by worms; 111 were in fruit at the close of the year.

Mangos.

13. Three largish mango trees were killed by under-ground rats, who gnawed right across their main root. There was a good show of fruit at the close of the year, and 245 trees were in fruit.

Pine apples.

14. The pinery in its former place was too much exposed to the sun, so all the plants had to be transplanted under the shade of the larger mango trees.

Plaintains.

15. I have tried several good kinds of plantain for several years, but I have come to the conclusion that they are not adapted to this climate, or, perhaps, the climate and poor soil of the garden combined. In the winter they are injured by the frost, and in the summer by the hot winds. The rainy season, which is most favorable time for them, is not sufficiently long to enable them to recover and bear fruit. The China variety produces a very tall stem, which is useful for feeding cattle, as it will not fruit here.

Arabian date palms.

16. Of the imported sprouts planted out, 77 are alive and thriving, and 11 weak ones died. Of the last batch of sprouts received from the Persian Gulf (100 in number, on the 3rd September 1874), only 18 are dead; the others are alive, and most of them will strike. Of the seedlings 326 are alive, and all those which remained in the nursery have been distributed.

Eucalyptus.

17. Seeds of 11 kinds of eucalyptus have been received from different quarters. Most of them have germinated, but their most trying time is the rainy season, and therefore little can be said about them till they have gone through one.

The kinds which have germinated well are Eucalyptus obliquus gonicalyx, globatus, amygdalinus, rostratus, calophyllatus, collossus, marginatus, globulus, and globosus, and also two other species, viz., the "stringy bark gum" and the "weeping gum."

Mr. Ridley, Superintendent of the Wingfield Park, informs me that some seed which he collected from a large eucalyptus tree in the park has germinated, so that there is hope of acclimatizing the kinds which are adapted to this climate. The rapidity with which this tree grows, and the straightness of its timber will make it a useful acquisition.

Frost.

18. The temperature was lowest this year on the night of the 23rd January, so that the frost was rather late. Only a few things were injured by it. The plan for using the castor oil tree as a protector over young plants succeeded admirably where it was tried properly. The young mahogany trees which had been planted out, and which were surrounded by these trees, were all uninjured. The nursery of mango seedlings was not sufficiently protected, as the castor seed was not sown sufficiently early, and was not of a kind which grows rapidly. The seedlings were, consequently, partially injured.

The power of smoke to protect plants from frost could not be efficiently tried, as the malees could not be made to light the fires sufficiently late.

Plant houses.

19. The "chick" houses continue to be very useful for plants requiring their shelter. Several ferns have been added to our collection, as also many orchids and other exotics. The elegant achimenes thrive under its shelter with remarkable luxuriance.

New hardy plants.

A great success has been the introduction of the "Bugainvillea glabra." It flowers during a large portion of the year. It has been

rapidly multiplied and disseminated throughout the province. Various compounds in Lucknow, during its flowering time, are lit up with its inimitable splendour.

21. *Sugarcane.*—This crop, after having been cut once last year, was allowed to grow again. The stubble was hoed, irrigated at intervals, and weeded. No additional manure was used. All the four plots (two bighas, 12 biswas) last year produced 1,263 maunds of sugarcane, at a cost of Rs. 140-5-0. This year the same plots, diminished by 5¼ biswas, produced a second crop of 883 maunds, at a cost of Rs. 79-12-6; that is, about two-thirds of the former crop at about half the cost; so that, supposing this crop were grown for feeding cattle, and the land were not required for growing a better paying crop, it would be advantageous to allow the stubble to produce a second crop. The total amount of sugarcane which was reaped this year would have been larger, were it not for the burrowing of innumerable rats, who injured the crop to some extent. The saving from feeding the garden cattle on sugarcane, as long as it lasted, instead of bhoosa, was Rs. 69-4-2. It should be remembered, however, that the rent of the land (bhoor) is not included in the above calculation. Experiments.

21. *Sorgho. a.*—The red seeded kind of sorgho saved from the previous year was sown on various plots, the soil being in all what natives call "bhoor." The dates of sowing varied on the different plots, but commenced as soon as the ground could be ploughed and cleaned after the first shower of rain.

b.—The mode of culture adopted was the common country mode, the difference being that the manuring for the previous crop was in most instances much heavier than what natives apply. It consisted of either cowdung, horse litter, city sweepings, or a mixture of wood ashes and horse litter. In no instance was a plot freshly manured for the sorgho crop, but the plants fed on the remains of the heavy manuring of the previous crop. One plot lay fallow in the previous season, and on that no manure was used.

c.—All the seed germinated well, and the quantity sown on each plot appeared to be near the proper amount, as in only few instances were the plants too crowded. In such cases they were thinned during the process of weeding.

d.—I adopted the native mode of culture, as I considered that if these experiments are to have any practical value, they should be conducted in a manner which is within the reach of the native cultivator. It would be hardly of any use trying experiments with liquid manure, trenching, &c.

e.—No irrigation was necessary, as the fall of rain this year was very favorable for growing such crops. It commenced on the 5th June and continued, with more or less fall at very favorable intervals, till the 27th September. In the latter month there was a rather long intermission,

viz., between the 13th and 24th, but the canes were then ripe. The total rainfall for the season was 49·6 inches.

f.—The height of the plants on all the plots was pretty nearly equal, although the manures used for the previous crops were different; it averaged from seven to eight feet high. On a plot which is not taken into account in the accompanying tabular statement, I manured heavily with wood-ashes for the sorgho crop, and on that plot, although sown on 12th June, the plants did not grow higher than four or five feet. This I think would indicate that mineral manures *alone* are not advantageous, or that, perhaps, too much was used.

g.—Towards the end of July, the first fields sown began to show signs of flowering, that is, about six weeks after sowing, and shortly after, all the crops were in flower. At this period, the sorgho canes were decidedly sweet. I considered that in the process of seeding, the saccharine matter would be transferred from the stem, and deposited as starch in the seed. In order, therefore, to retain the sugar in the stem and make it more suitable for feeding cattle, I cut off all the ears of the plants, excepting those of one plot, which was retained for seed.

h.—I found it impossible to cut the crops for dry fodder, and allow a second crop to grow from the stubble, as the rain fell at short intervals and did not admit of the fodder being dried. It would have all rotted. To prevent this waste; I used some of the crops as green fodder for the garden cattle, and left some to be cut for dry fodder at the end of the rains. The stubble of a portion of a field which was cut on the 16th August was left, in order to ascertain to what height it would grow again. It grew to three feet and then all the plants flowered.

i.—In the accompanying table each experiment is given in greater detail, and to simplify matters and avoid mutiplication of figures, I have reduced the experiments to the acre and ton standard. With regard to dry fodder, I can only give the aggregate amount of several plots, as in the hurry of taking it under shelter, just before a heavy shower, the fodder of several plots was mixed up under a shed.

j.—The amount of seed produced appears small. Several of the ears on drying were found without seed. This I attribute to the very early flowering of the sorgho. It flowered about the middle of the rains, when the showers were heaviest. Thus each shower may have washed off a lot of pollen, and prevented it from taking effect. The best way to avoid this would, perhaps, be to cut the crop for green fodder earlier, and allow the second crop to seed, which would be later, but so far the experiment of growing a second crop produced weak plants and small ears. The native "jowar" flowers very much later, and therefore would produce a larger crop than the sorgho.

k.—In these experiments, the cost does not include rent and value of manure remaining from previous crop, which could not be given.

Tabular Statement of Experimental Cultivation of Sorgho made during the Rains of 1874, and reduced to the Acre and Ton standard.

Plot.	Date of sowing.	Quantity sown per acre.	Number of acres sown.	Mode of cultivation.	Date of cutting.	Yield in weight per acre: Seed.	Yield in weight per acre: Fodder.	Cost of produce	Remarks.
4	2nd July,	9 lbs.	17 perches.	The ordinary country mode. After the first showers the soil was ploughed and replough with the native implement and cleaned. It was weeded once, no irrigation was needed, no manure was applied for the Sorgho corp.	15th September, ...	...	Green fodder, T. cwt. qr lbs. 10 12 1 22¼	Rs. As. P. 1 6 5	Previous crop Cape gooseberry, slightly manured with night-soil.
8	8th June,	11¼ lbs.	1 Rood		5th August, ...	...	19 10 0 20¾	1 2 11	Previous crop oats, heavily manured with sweepings.
11	7th June,	5 lbs.	1 R. 22 P.		16th August, ...	...	12 11 1 19	1 9 2	Previous crop oats, heavily manured with woodashes and horse litter.
17	16th June,	10½ lbs.	1 R 20 P.		10th September, ...	...	8 13 3 5¾	1 13 0	Previous crop *fallow*, no manure.
13	16th June,	8¾ lbs.	1 R. 13 P.		When seed was quite ripe at close of rains.	C. Q. lbs 2 1 11½	...	...	Previous crop annuals, manured moderately with horse litter.
Seven plots.	Sown from 9th June to 3rd July.	6¼ lbs.	A. R. P. 2 2 31¾		At close of rains	...	Dry fodder. T. cwt. qrs. lbs. 5 9 2 6½ Green ears. cwt. qrs. lbs. 15 2 12¾	1 15 9	The previous crops of the seven plots were various, and the manures used were also various. The quantity of *dry fodder* includes that of plot 13, which was left for *seed*. The amount of green ears is exclusive of that of No. 13, which was kept for seed. The cost is for seed, dry fodder, and green ears.

Jute.—During last rains I tried some jute seed received from the Agri-Horticultural Society of India. It is the "corchorus capsularis," and was sown thickly. It grew to the height of eight-feet; I don't think there would be any difficulty in growing this fibre plant in this province if there were any great demand for fibres; but as long as the demand, to any extent, is only at the seaports, it could not pay to grow it so far from the shipping port, as the carriage would absorb all the profit. There are in Lucknow some indigenous kinds of corchorus which grow as weeds, and of which I have collected seed for trial. They may be more adapted to this climate than the seed from Bengal.

Mangel Wurzel and Sugar Beet.—The white sugar beet, and two kinds of mangel wurzel (the long yellow, white flesh, and the long red, above ground) were sown as a trial for feeding the garden cattle on them. All the seed germinated well, some of each was transplanted, and some was left where originally sown. Those which were transplanted grew very luxuriantly, and produced roots of great size.

Some mangel wurzel which I had weighed with the leaves on, weighed 9 lbs. each, and some sugar beet, also with the leaves on, weighed from 7 to 8 lbs. each. All were of medium size, as the largest ones had already been used for the cattle. At first I fed the cattle with these roots instead of bhoosa, but they caused diarrhœa, probably from having had too much; I diminished the amount and mixed it with a proportion of bhoosa, the cattle eat it willingly, and the diarrhœa stopped. Mangel wurzel is likely to prove a good crop for feeding cattle. It is fit for use at the beginning of the hot weather, and would last till the beginning of May or so without much watering.

Country Carrots.—A plot of ground 1,917 square yards=12 biswas and 13 biswansis was sown with country carrots for cattle fodder. The previous crop was sorgho, and the ground was not afterwards re-manured. The seed was not very good, as a proportion of the plants went readily into flower. The crop grew luxuriantly, the leaves were cut once and allowed to grow again, but it is doubtful whether this is good practice, because the leaves, when fully grown, would admit of the root becoming larger, but if the nourishment of the plant be required to produce a second crop of leaves, it would appear that the root must suffer. From this piece of ground 93 maunds 20 seers of leaves were cut, and 96 maunds and 20 seers of roots.

The cost of growing and cutting, exclusive of rent and manure, was Rupees 13-2-3.

Potatoes.—The attempt to introduce new varieties of potatoes from England has not been encouraging; many of them became spoilt before the sowing season arrived, and of those that germinated some were killed by insects, and the remainder by frost.

Oats.

Plot near Kadam Rasool.—Consisting of 1,125 square yards=7 biswas 16 biswansis. The soil is made up of city sweepings. The previous crops were barley in winter, and sorgho in the rains. The

ground was not re-manured. Seven seers of oats were sown. The crop was cut once and allowed to grow again. The total produce was 94 maunds of green fodder, 2 maunds of oats, and 6 maunds of bhoosa. The cost was Rupees 7-9-3.

Plot No. 16.—Consisting of 1,729 square yards = 12 biswas 3 biswansis. The previous crop was sorgho. The plot was afterwards manured with 40 cartloads of horse litter, and 16 seers of oats were sown. The crop was cut once. The total produce was 66 maunds of green fodder, 7 maunds 8 seers of oats, 10 maunds 20 seers of bhoosa. The cost was Rs. 13-12-6.

Plot near river.—Consisting of 6,152 square yards = 2 bighas and 12 biswansis. In the previous winter the ground was cropped with oats. No manure was used, and 1 maund and 20 seers of oats were sown. The produce was 11 maunds of oats and 12 maunds 10 seers of bhoosa. The cost was Rupees 12-11-10.

BARLEY.

Plot No. 12.—Consisting of 432 square yards = 2 biswas 17 biswansis. During the rains it was not cropped, but heavily manured with ashes only; nine seers of country barley were sown. The crop was cut once and allowed to grow again. It gave the following produce, 31 maunds of green fodder, 2 maunds of barley, and 3 maunds of bhoosa. The cost was Rupees 9-1-0.

Plot No. 17.—Consisting of 1,729 square yards = 11 biswas 7 biswansis. The previous crop was sorgho. Afterwards the ground was manured with 45 cartloads of horse litter, and 17 seers of country barley were sown. It was not cut for green fodder, and it gave the following produce, 7 maunds of barley, 13 maunds of bhoosa. The cost was Rupees 14-3-6.

Plot near river.—Consisting of 7,303 square yards = 2 bighas 8 biswas and 5 biswansis. In the previous winter, oats had been sown on this ground. No manure was used. One maund of country barley was sown, and the following was reaped, 11 maunds of barley, and 9 maunds of bhoosa. The cost was Rupees 15-1-11.

Comparative Result of Experiments with Barley and Oats on Bhoor land reduced to the Acre and Ton standard.

Number or name of plot.	Manure used.	Number of waterings.	Produce per acre.												Cost of growing, exclusive of rent and manure, per acre.		
			Green fodder.				Grain.				Bhoosa.						
			Tons.	Cwt.	Qrs.	lbs.	Tons.	Cwt.	Qrs.	lbs.	Tons.	Cwt.	Qrs.	lbs.	Rs.	As.	P.
Near Kadam Rasool, oats, ...	Not re-manured,...	2	13	14	...	...	...	5	3	9	...	18	...	24	30	14	9
No. 16, oats.	40 cartloads of horse litter, ...	3	6	11	3	24	...	14	1	16	1	1	...	...	38	9	3
Near river, oats, ...	No manure, ...	1	...	...	...	...	...	6	1	1	...	6	3	21	10	0	4
No. 12, barley, ...	Heavily with ashes, ...	8	11	3	...	9	...	16	...	...	1	4	...	...	101	8	6
No. 17, barley, ...	45 cartloads of horse litter, ...	2	...	...	...	...	...	14	...	7	1	6	...	14	40	0	2
Near river, barley, ...	No manure, ...	1	...	...	...	...	...	5	...	23	...	4	1	1	10	0	3

NOTE OF AGRICULTURAL EXPERIMENTS IN ENGLAND.

22. It may be of advantage to mention here some agricultural experiments reported in the journal of the Royal Agricultural Society of England, Nos. 17 and 18, volume 9th, parts I. and II. 2nd series, as bearing on the value of certain manures in growing crops.

Messrs. Lawes and Gilbert carried on experiments for 20 years with wheat and barley on the same soil differently manured. These experiments were carried on with the greatest care. Not only were the manures used analysed, and the crops reaped weighed and analysed, but the soil was also analysed before manuring and after reaping the crop. Both the surface soil and subsoil were analysed to ascertain the loss by drainage.

The general conclusions arrived at are as follows :—

(*a*). That mineral manures alone failed to enable the plant to obtain sufficient nitrogen and carbon to yield even a fair crop, and therefore the mineral "theory" must be rejected. This inculcated that, provided the mineral constituents of a cultivated plant were supplied in sufficient quantity, it would obtain the requisite amount of nitrogen from the air, and that, therefore, the presence of ammonia in the manures or in the soil was immaterial. This has been found not to be the case.

(*b*). That nitrogenous and mineral manures combined produced a better effect than farmyard manure alone; that the nitrogen of the latter is not in the most available condition; and that its carbonaceous matters are unessential: and, therefore, when farmyard manure is used for each crop, an accumulation in the soil of nitrogen, carbon, and, probably, other mineral constituents takes place, provided the texture of the soil is favorable to such accumulation.

(*c*). That the liability of loss by drainage of the most important element of manures—nitrogen—is very great, but that the loss varies according to the character of the soil and subsoil, and of the seasons.

(*d*). That the land should be ploughed soon after the removal of the preceding crop.

(*e*). That whatever manure be used, it should be broken up, finely pulverized, spread broadcast, and harrowed in with the seed. Full details of all these most instructive experiments are given in these two numbers of the Society's journal, and they will repay perusal by any one interested in these matters.

The lesson I would draw from them, as far as this country is concerned, is that heavy manuring is of doubtful advantage, and that the Chinese method of manuring for each crop, without waste of manure, and only in sufficient quantity for that crop, is the wisest and most economical method of utilizing manures. Of course, every kind of soil requires a special experience, in order to gain a knowledge of its wants and capabilities.

23. The seeds and plants received during the year are the following :— New plants and seeds introduced.

ROYAL BOTANICAL GARDEN, CALCUTTA.

Several packets of seeds, including eucalyptus, palms, bamboos, &c.

Four boxes of plants of sorts, including *orchids*.

CHINCHONA PLANTATIONS, DARJEELING.

Seeds of cinchona, tea, and coffee, and Hodgsonia heteroclita, also varieties of ferns and *orchids*.

FROM THE DEPARTMENT OF AGRICULTURE, COMMERCE, AND REVENUE.

A box containing cuzco maize for experiment.

AGRI-HORTICULTURAL SOCIETY OF INDIA.

Seeds of corchorus, tea, and coffee, eucalyptus, &c. One box of palms, and one box of caladiums.

BOTANICAL GARDEN, SAHARUNPUR.

A packet of seeds of hill trees.

AGRI-HORTICULTURAL SOCIETY OF MYSORE.

One box of cannas; one box of achimenes.

DR. G. S. SUTHERLAND.

A packet of eucalyptus of various kinds, and some seeds of hill plants.

CAPTAIN WOOD, CONSERVATOR OF FORESTS OF OUDH.

A plant of the twining fern.

MR. T. THOMAS.

A small collection of ferns from Simla.

COLONEL LOUTHER, JUBBULPORE.

A packet of seeds of various sorts.

MAJOR STEWART, CAWNPORE.

A box of seeds of the Cæsalpinia coriaria.

COLONEL REES, ALLAHABAD.

A packet of seeds of the dog-rose.

ACCLIMITIZATION SOCIETY OF QUEENSLAND.

Various spores of ferns, and other seeds.

DR. MCREDDIE.

Seeds of Eucalyptus globosus and Dipsacus fullonum.

MR. CRESWELL, MELBOURNE.

Various kinds of Eucalyptus, Acacia, and other seeds.

FROM THE TAJ GARDENS.

Two plants of Tacsonia and one of Vanilla.

Seeds distributed gratis.

24. To all Deputy Commissioners of Oudh. Seeds of selected country cotton; seeds of Bambusa stricta and Bambusa spinosa; seeds of "bara," rice from Peshawur, and of sorgho.

Deputy Commissioner of Fyzabad.—Seeds of Corchorus capsularis (jute) and of Australian flax, also selected country flax.

Commissioner Rae Bareli, and Deputy Commissioners of Unao, Fyzabad, and Sitapur.—Seeds of Cæsalpinia coriaria (Divi-Divi).

Inspector General of Prisons.—Seeds of Bambusa Spinosa and Stricta.

Wells

25. During last hot weather the mandarin orange trees suffered so much from the scorching wind that I thought they did not receive sufficient water during that season, although the wells were worked night and day, by separate relays of men and bullocks. I therefore considered it necessary to sink another small well, five feet diameter, to irrigate this plot, and an adjacent part of the garden which is inconveniently distant from all other wells. This new well is not completed yet. I have introduced the Dekkan mode of working wells, viz., with a spout to the leather bucket, so that the latter may empty itself when it comes to the top. This arrangement will save a man per well.

School.

26. Four boys were originally taken on as apprentices. One was removed by his father, who required his help in the fields; another was dismissed because he made no progress; a third ran away, as he did not care about the work and the pay was small. Altogether seven boys have had the chance of learning a profession, and at the same time be taught to read and write, so as to be enabled to make the best use of their profession as gardeners. Only two, however, remain: one of these is a clever boy, and is making satisfactory progress both in reading and writing and in learning gardener's work. He is a "malee" by caste. The other, an "aheer," is progressing also.

There are many difficulties in the way of doing much for natives, as they do not consider it a boon to be taught a profession. The only thing they look to is the pay which is offered for submitting to be taught. They regard it more as *doing* a favor than as *receiving* one. A malee hearing that a school had been opened in the Horticultural Garden brought his son, rather well-dressed, to be admitted. But when he heard that the boy, besides being taught to read and write, would also have to learn the practical part of his work, he would not send him. His father evidently wished to make a gentleman of him.

Horticultural show

27. The annual Horticultural Show was held on the 27th February. The show account stands as under:—

Remaining from last year	Rs	190	14 11
Contributed by European and Native gentlemen	„	198	0 0
Contribution by Municipality of Lucknow ...	„	50	0 0
Sale of tickets	„	54	8 0
	Rs.	493	6 11

The expenses were as follows:—

Distributed in prizes	Rs.	151	0 0
Carriage of tables, chairs, &c.	„	10	9 9
Printing handbills and tickets	„	17	5 6
Making four tables for the show	„	21	4 0
Balance remaining	„	293	3 8
	Rs.	493	6 11

The show was the best we have yet had. The vegetables were in no way inferior to those exhibited on other occasions, while the flowering and ornamental plants were much superior. A good collection of double stocks, geraniums, and plants with ornamental foliage was contributed by the Wingfield Park. And a large collection of exotic palms, ferns, and other plants was contributed by the Horticultural Garden. One part of the central hall in the Kaiser Bagh Baradaree looked remarkably like a well-arranged conservatory. The show of cut roses was as good as a fierce wind, which had been blowing for two or three days previously, would allow. The committee for awarding prizes consisted of Dr. Sherlock, Captain Crosthwaite, Mr. Ridley, Mr. Hoskins, and Mr. Duggan.

It was urged that there should be two sets of prizes. The one for public gardens, and the other for those of amateurs, as private gardens had no chance of competing with public ones. But upon analysing the list of prize-takers, it was found that out of 31 prizes for vegetables and fruits, 27 were carried off by private gardens, and only 4 by a public garden; while of 21 prizes for flowers and ornamental plants, 6 were taken by amateurs and 15 by public gardens. Thus it appears that the only reason why amateurs do not gain more prizes for flowers is because they cultivate rather the useful than the ornamental. It is true that public gardens have larger resources, but it is also true that the extent of ground over which they are scattered is infinitely greater than that of a private garden. A public garden might outvie a private garden in quantity, but there is no reason why quality should not be obtained by any amateur.

Places to which plants were sent.

28. The following are the various places to which plants, &c. have been sent in 1874-75 :—

Allahabad, Kussowli, Jubbulpore, Burhampur, Mutra, Shahjehanpur, Arrah, Morar, Simla, Hutwa, Gorakhpur, Fatehgarh, Bareili, Nagpur, Fatehpur, Mian Meer, Saugar, Dinapur, Haiderabad, Deccan, Nagode, Abbotabad, Ranikhet, and also to various places in the Oudh province.

Mule Breeding.

29. Finding there was no chance of obtaining any Bokhara donkeys, which are in this country considered the best, I purchased, through the kind assistance of Dr. McReddie, a pair of the best donkeys which are brought down to Amritsar by Cabul merchants. They reached Lucknow on the 3rd March. The male is 12 hands high and the female $11\frac{1}{2}$. Their cost, including railway hire to Lucknow, &c., is Rs. 185-6-0. The expense of keeping them will be trifling, as there is abundant grazing for them in the Horticultural Garden among the trees. They are not so good as I should have wished, but they are infinitely superior to any donkeys to be found in this province.

E. BONAVIA, M.D.,
Supdt., Dept. of Science in Oudh.

8109

Abstract of Horticultural Garden Accounts for 1874-75, *commencing from* 1st *April* 1874 *to* 31st *March* 1875.

	Receipts.	Amount.	Total.		Disbursements.	Amount.	Total.
		Rs. A. P.				Rs. A. P.	
	Balance on 31st March 1874, ...	...	536 7 9	1	Messrs. Landreth and Son. ...	443 14 10	
1	Government allowance for 12 months, ...	2,640 0 0		2	Ditto Vilmorin Andrieux and Co., ...	179 1 0	
2	Interest on Government notes for 1 year, ...	108 0 0		3	Freight on imported seeds and plants, ...	112 1 4	
3	Lease of land. ...	434 6 0		4	Landing charges on various cases, ...	52 15 1	
4	Subscription first class, ...	617 0 0		5	Pay of Head Gardener from March 1874 to February 1875, ...	600 0 0	
5	Ditto second do., ...	144 0 0		6	Ditto Permanent Establishment from March 1874 to February 1875, ...	1.943 0 4	
6	Sale of plants, ...	1,589 6 0		7	Ditto Temporary ditto, ...	279 4 0	
7	Ditto fruits. ...	429 5 6		8	Food of bullocks. ...	950 15 11	
8	Ditto vegetables ...	12 4 0		9	Construction of new well, ...	633 9 6	
9	Ditto flowers, ...	28 2 0		10	Repairs to old well. ...	345 11 0	
10	Ditto acclimatized seeds, ...	641 6 6		11	Carriage and packing of plants and seeds sent out, ...	373 15 1	
11	Ditto imported seeds, ...	1,367 2 1		12	Construction of plant-house. ...	289 7 5	
12	Ditto wood and cotton, ...	31 8 6		13	Two glass sheds and four glass boxes, ...	198 10 6	
13	Ditto a bullock (unserviceable.) ...	47 0 0		14	Trellis work. ...	161 14 7	
14	Ditto old iron, ...	6 4 0		15	Purchase of plants and seeds, ...	172 6 2	
15	Received on account of packing and carriage of plants and seeds,	281 14 11		16	Ditto earthen pots, ...	126 13 6	
16	Savings and fines, ...	26 5 3		17	Ditto manure, ...	141 3 3	
17	Sale of descriptive catalogue of roses, ...	13 10 6		18	Ditto implements and labels for plants, ...	220 9 1	
18	Miscellaneous, ...	3 13 3		19	Ditto a pair of Cabul donkeys from Amritsar, ...	187 2 0	
			8,421 8 6	20	Carrying earth and levelling ground, ...	212 14 3	
				21	Weeding charges. ...	91 3 6	
				22	Refunded to purchasers on account of advances, ...	51 0 6	
				23	Constructing new water channels and repairing old ones, ...	167 3 2	
				24	Printing and advertising. ...	58 4 6	
				25	Postage stamps and receipt stamps, ...	72 1 0	
				26	Stationery, ...	15 7 0	
				27	Repairs to cart. ...	67 3 7	
				28	Thatching potting shed. ...	19 10 9	
				29	Stamped cheque books and incidental bank charges, ...	12 4 0	
				30	Collecting seeds, ...	11 10 2	
				31	Purchase of books, ...	21 2 2	
				32	Miscellaneous, ...	58 10 2	
							8,271 5 4
					Balance on 31st March 1875, ...	...	686 10 11
	Total Rupees, ...	..	8,958 0 3		Total Rupees, ..	...	8,958 0 3

E. BONAVIA, M. D.,
Superintendent Department of Science, Oudh.